

SECTION 73

CONCRETE CURBS AND SIDEWALKS

Concrete curbs and sidewalks shall conform to Section 73 of the Caltrans Standard Specifications and these City Standard Specifications.

73-1.01 Description. - Portland cement concrete to be used for this work shall be Class A concrete.

73-1.01A Curb and Gutter Types. - Curbs and gutters are designated by type, in accordance with the dimensions shown on the plans and standard plan details and as described below.

<u>Type</u>	<u>Description</u>
A1	Standard curb with 6-inch curb face, 3/4-inch batter, overall depth of 14-inches, no gutter section.
A2	Standard curb and gutter, with 6-inch curb face, 3/4-inch batter, and 24-inch gutter section.
B1	Island barrier curb 24-inches overall in height, 8-inch curb face, 3 1/2-inch batter; used for landscaped islands.
B3-6	Island curb 6-inches in height with 3 1/2-inch batter; superimposed on existing pavement.
B3-8	Island curb same as above, except 8-inches in height.
V	Standard valley gutter, 4-foot width, 3 percent slope each way in cross-section.

73-1.05 Curb Construction. - Weakened plane joints shall be constructed at intervals of 10 feet or as shown on the plans. When a Portland cement concrete sidewalk or pavement is adjacent thereto or to be constructed adjacent thereto, the joints shall coincide with score marks in the sidewalk or pavement.

The weakened plane joint shall be constructed by scoring the partially set concrete to a minimum depth of 2 inches by 1/4-inch with a tool that will leave the corners rounded.

Expansion joints shall be installed only where specifically called for on the plans or as directed by the Engineer.

All curb and gutter joints shall conform to City Standard Plan Details.

The batter of the curb face and lip of gutter shall be constructed true to the dimensions as shown on the plans.

The use of an existing asphalt pavement edge as the lip of a gutter form will be allowed only upon express approval by the Engineer. The use of the

excavated embankment for backforms will not be allowed, except for the bottom portions of A1 and B1 barrier curbs.

Defective curb shall be repaired by removing and replacing no less than 5 feet and leaving no less than 5 feet from a joint.

73-1.05C Drain Openings. - Where required, drainage openings or outlets shall be constructed through curbs. The opening may consist of curb opening castings, in the configuration of the curb, or may be hand formed using a suitable mold the size of the drain. Care shall be exercised in placing concrete around hand formed openings to prevent cracking of the curb after the concrete has cured.

73-1.05D Flow Line Test. - Before approval or acceptance of integral curb and gutter, a flow line test shall be conducted to the satisfaction of the Engineer. Water, in a quantity determined by the Engineer, shall be released at the high point in the gutter and allowed to flow naturally. Any obstructions to the water flow shall be noted, as directed by the Engineer. The noted obstructions shall be corrected by either grinding off the high spots or removing and reconstructing the affected portions of curb and gutter.

73-1.05E Curb Markings. - The street name shall be imprinted into the face of the curb on the tangent section of curb adjacent to the curb return and at all other places indicated on the plans and specified in the special provisions.

The location of all sanitary sewer lateral that intersect the curb and gutter shall be marked by an "S" impressed directly above the lateral.

The letters used for markings shall be at least 2-3/4 inches high and impressed at least 1/4-inch into the concrete on the face of the curb.

73-1.05F Backfilling. - After the concrete has set sufficiently (minimum of 3 days), the spaces in back of and in front of curbs shall be backfilled to the required elevations with suitable material.

73-1.05G Protecting Concrete. - Newly completed concrete work shall be protected from damage. No construction equipment will be allowed adjacent to concrete curb and/or gutter until the fourth day following placement of the concrete. No paving operation will be permitted adjacent to concrete curb or gutter until the seventh day following the placement of the concrete. No equipment will be allowed on or to travel over newly placed concrete until the seventh day following placement of concrete, unless adequate provisions are made to transfer the loads off of the concrete.

73-1.06 Sidewalk, Gutter Depression, Island Paving, Wheelchair Ramp, and Driveway Construction. - Sidewalks shall be either detached, that is separated from the curb or structure, or marginal, that is adjacent to the curb, as shown on the plans. Under no circumstance shall concrete curbs and marginal sidewalks be constructed or poured monolithically.

Driveway aprons and wheelchair ramps shall be constructed as an integral part of the sidewalk with the thickness of sidewalk the same as the apron or ramp unless shown otherwise on the plans.

Flared ends of curbs for driveways and wheelchair openings shall be uniform and symmetrical.

The top of driveway or wheelchair curbs shall be true and straight and free from humps, sags, or other irregularities. The face rise of the driveway or wheelchair curb at flow line of gutter shall be formed with a driveway finishing tool as approved by the Engineer.

Forms for island pavement shall consist of previously constructed or existing type B-3 curbs. Screed forms shall be used where crowns are required in the island pavement. All other forms shall conform to the provisions as specified in Section 73-1.04, "Fixed Forms," of the Caltrans Standard Specifications.

In curing exposed aggregate surfaces, care shall be exercised to insure the curing compound used will not stain the surface.

Expansion joint filler, 1/4-inch thick, shall be installed between concrete sidewalks and any fixed structure such as a building or bridge. The expansion joint filler material shall extend for the full depth of the walk.

73-1.06A Weakened Plane Joints. - Weakened plane joints in sidewalks, driveway aprons, and wheelchair ramps shall be constructed in the concrete slab at intervals of 10 feet or at intervals shown on the plans. Weakened plane joints shall coincide with any existing joints in adjacent curbs or other facility.

Weakened plane joints shall be constructed by use of mechanical separators which shall be T shaped plastic strips at least one inch deep with a suitable anchor to prevent vertical movement. The top stiffener shall be at least 3/4-inch in width and shall be capable of separating from the web with a minimum amount of effort. The thickness of the web and separator shall be at least 1/16-inch and the length of the strip shall be sufficient to span the width of the concrete slab.

After preliminary trowelling, the concrete shall be parted at the designated locations, to a depth of approximately 2 inches, with an approved thin metal straight edge. The mechanical separator shall then be inserted in the impression so that the upper surface of the pull-top stiffener is flush with the concrete. The pull-top stiffener shall then be peeled off. After the pull-top stiffener is removed, the concrete shall be floated or trowelled to fill all voids adjacent to the joint strip.

During final trowelling, the edges of the mechanical separator shall be finished to a radius not to exceed 1/8-inch, using an approved slit edge jointing tool. Ordinary single edge jointers or groovers shall not be used, as they cause the joint strip to move out of alignment.

The sidewalk slab shall be divided into sections, between weakened plane joints, at 5 foot intervals, or at intervals shown on the plans, by score marks or dummy joints.

The score marks or dummy joints shall be formed by a jointing or grooving tool. The score mark or dummy joint shall extend into the concrete at least 1/4-inch and shall be approximately 1/8-inch wide. Score marks or joints normally shall be perpendicular to the line of work except at curves, where the mark or joint shall be radial to the curve. When longitudinal marks or joints are required, they shall be parallel to or concentric with the line of work.

Weakened plane joints for island paving or exposed aggregate paving shall be in accordance with the provisions above or may be accomplished by sawing to a depth of 1/4 to 1/5 the thickness of the slab.

73-1.06B Finishing. - Sidewalks, driveway aprons and wheelchair ramps are designated as to style of finish to be applied to the surface. The style of surface finishes are as follows:

Ordinary -- trowelled, medium broom finish

Exposed Aggregate -- seeded, transfer, or surface retarder methods

Special -- colored, decorative, or contrast.

Unless otherwise specified in the special provisions or shown on the plans, the style of surface finish for sidewalks, driveway aprons, or wheelchair ramps shall be "ordinary" as specified herein, except for wheelchair ramps without interior score marks, it shall be rough broom finish.

After the concrete has set sufficiently, the surface to receive "Ordinary" finish shall be given a final trowelling, and all joints, score marks, and edges shall be reopened or refinished. The finished surface shall then be lightly broomed transverse to the direction of the sidewalk.

Exposed aggregate surface finish shall be accomplished as follows:

- (1) Immediately after the slab has been screeded, floated, and edges rounded with an edging tool, the selected aggregate as specified in the special provisions or shown on the plans, shall be scattered by hand and evenly distributed so that the entire surface is completely covered. The initial embedding of the aggregate shall be done by patting with a darby.
- (2) As soon as the concrete can support the weight of a mason on kneeboards, the surface shall be hand floated so that the aggregate is entirely embedded just beneath the surface. Concrete mortar paste should completely surround and slightly cover the aggregate, leaving no holes or voids in the surface.
- (3) After the hand floating is completed, a set retarder shall be sprayed or brushed over the surface in accordance to the manufacturer's recommendation. The rate of application of the retarder shall be sufficient so that the depth of mortar paste removed, on exposing the aggregate, shall be no more than 1/8-inch. The surface treated with retarder shall be protected by covering with polyethylene sheeting or paper to prevent drying out. The retarded mortar paste shall be removed within 12 hours after placement. The use of a set retarder may be waived by the Engineer, provided assurance is guaranteed that the exposed aggregate surface finish is uniform in exposure and appearance.
- (4) The exposing of the aggregate shall be accomplished by simultaneously brushing and hosing of the mortar with water. Care shall be exercised not to overexpose or dislodge the aggregate.
- (5) After the exposing of aggregate has been completed, the residue of the work shall be removed and disposed of, and any existing surface or facility splattered or stained shall be cleaned.

Special surface finish shall be as specified in the special provisions.

73-1.06C Protecting Concrete. - All newly completed concrete work shall be protected from damage, including damage by vandalism. No construction equipment or vehicles shall be allowed on or adjacent to newly completed concrete work as specified in Subsection 73-1.05G "Protecting Concrete."

73-1.06D Damaged or Defective Work. - Damaged or defective concrete work shall be removed and replaced. Removal of unacceptable concrete work shall be the entire unit between joints, or score marks if saw cut.